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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,462	08/08/2006	Brian Tierney	29610/CDT448	8353

4743 7590 11/19/2007

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EXAMINER	
HO, ANTHONY	
ART UNIT	**PAPER NUMBER**
2815	

MAIL DATE	DELIVERY MODE
11/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No.	Applicant(s)	
	10/549,462	TIERNEY ET AL.	
	Examiner	Art Unit	
	Anthony Ho	2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *18-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 25-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to amendment to application no. 10/549,462 filed on November 5, 2007.

Claims 1-32 are presented for examination. Claims 18-24 stand withdrawn.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 5-16, and 25-32 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Woo et al (US PUB 2001/0026878).

In re claims 1 and 2, Woo et al discloses an electroluminescent device comprising: an anode; a cathode comprising barium, strontium or calcium; and a layer of solution processable organic semiconducting material (paragraphs 0019, 0022 and 0059) between the anode and the cathode wherein a layer of cross-linked hole transporting and electron blocking material (paragraph 0019) is located between the anode and the layer of organic semiconducting material (paragraph 0062 – paragraph 0065).

In re claims 5-9 and 25-26, Woo et al discloses the layer of hole transporting and electron-blocking material comprises triarylamine that has repeat units of a polymer, such as the repeat units of the listed formulae (page 2 – page 3; paragraph 0019; paragraph 0059; paragraph 0062 – paragraph 0065).

In re claims 10-13 and 27-30, Woo et al discloses the layer of organic semiconducting material is a semiconducting polymer which comprises triarylamine that has repeat units of a polymer, such as the repeat units of the listed formulae (page 2 – page 3; paragraph 0019; paragraph 0059; paragraph 0062 – paragraph 0065; table 2).

In re claim 14, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the molar ratio of the triarylamine repeat units be less than or equal to 50%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233.

In re claims 15 and 16, Woo et al discloses a layer of hole injecting material is located between the anode and the layer of hole transporting and electron blocking material, wherein the layer of hole injecting material is poly(ethylene dioxythiophene) (page 2 – page 3; paragraph 0019; paragraph 0048; paragraph 0059; paragraph 0062 – paragraph 0065).

In re claim 31, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the molar ratio of the triarylamine repeat units be less than or equal to 30%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233.

In re claim 32, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the molar ratio of the triarylamine repeat units be in the range 1-10%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233.

Claims 1, 2, 4, 10, and 15-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Periyasamy et al (WO 02/31896).

In re claims 1 and 2, Periyasamy et al discloses an electroluminescent device comprising: an anode; a cathode comprising barium, strontium or calcium; and a layer of solution processable organic semiconducting material between the anode and the cathode wherein a layer of cross-linked hole transporting and electron blocking material is located between the anode and the layer of organic semiconducting material (page 26; procedure 1; page 45; table 5).

In re claims 4 and 17, Periyasamy et al discloses the cathode comprises barium and elemental barium (page 26; page 45; table 5).

In re claim 10, Periyasamy et al discloses the layer of organic semiconducting material is a semiconducting polymer (page 26; page 45; table 5).

In re claims 15 and 16, Periyasamy et al discloses a layer of hole injecting material is located between the anode and the layer of hole transporting and electron blocking material, wherein the layer of hole injecting material is poly(ethylene dioxythiophene) (page 26; page 45; table 5).

Claims 1-4 and 17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Naito (EP 1220341).
In re claims 1 and 2, Naito discloses an electroluminescent device comprising: an anode; a cathode comprising barium, strontium or calcium; and a layer of solution

processable organic semiconducting material between the anode and the cathode wherein a layer of cross-linked hole transporting and electron blocking material is located between the anode and the layer of organic semiconducting material (paragraph 0069 – paragraph 0072).

In re claim 3, Naito discloses a full color device where in the layer of organic semiconducting material comprises red, green and blue electroluminescent materials (page 12, paragraph 0043-0072 – page 15).

In re claims 4 and 17, Naito discloses the cathode comprises barium and elemental barium (paragraph 0043-0072).

Response to Arguments

Applicant's arguments filed November 5, 2007 have been fully considered but they are not persuasive.

In response to applicant's argument that none of the applied prior arts of record discloses an optical device comprising a layer of cross-linked hole transporting and electron blocking material between an anode and a layer of organic solution processable semiconducting material, examiner asserts that the applied prior arts of record do disclose the claim limitation of a layer of cross-linked hole transporting and electron blocking material between an anode and a layer of organic solution processable semiconducting material. The compounds disclosed in the applied prior

arts of record are the same as the compounds disclosed in the instant application and are labeled as "cross-linkable groups". Thus, the claimed invention is not patentably distinct over the devices of the applied prior arts of record.

The recitation "solution processable" in the claim is functional language and is treated as nonlimiting since it has been held that in device claims, the device must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) The absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference. See MPEP 2114.

In response to applicant's argument regarding how the organic semiconducting material is deposited, the claimed invention is a product-by-process claim and even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Ho whose telephone number is 571-270-1432. The examiner can normally be reached on M-Th: 8:30AM-7:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH
November 14, 2007

JEROME JACKSON
PRIMARY EXAMINER